

REMARKS

The Examiner is thanked for the due consideration given the application.

Claims 1-11 and 13-31 are pending, of which claims 1-11 and 16 are withdrawn. Independent claim 13 is the broadest claim under consideration.

No new matter is believed to be added to the application by this response.

Entry of this response is respectfully requested because it raises no new issues and places the application in condition for allowance.

Rejections Based on Kawakami

Claims 13, 14 and 17-27 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,051,340 to Kawakami et al. ("Kawakami") in view of newly applied U.S. Patent No. 2,865,973 to Hartman et al. ("Hartman").

Claim 15 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Kawakami in view of Hartman and further in view of U.S. Patent No. 5,147,739 to Beard.

Claims 29 and 31 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Kawakami in view of Hartman and further in view of U.S. Patent No. 6,589,694 to Gosho et al. ("Gosho").

Applicants respectfully traverse.

As is set forth in independent claim 13, the present invention pertains to an electrode for secondary batteries, which includes a first and a second surface both showing electrical conductivity and adapted to be brought into contact with an electrolytic solution, an active material layer containing active material particles positioned between the first surface and the second surface, and an electrically conductive foil in the middle of the thickness direction thereof, where the active material layer is present on both sides of the conductive foil. The active material layer further contains a penetration plated electrically conductive metallic material which is deposited on the active material particles and is continuously filled between the active material particles over the entire thickness direction of the active material layer.

The present invention can be seen in Figures 8, 10 and 11 of the application, which are reproduced below.

Fig. 8

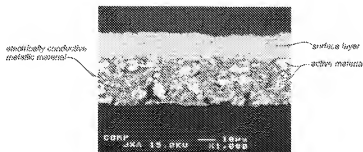


Fig. 10

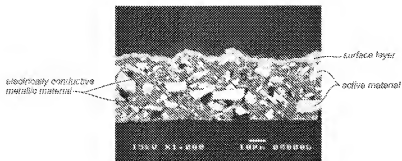
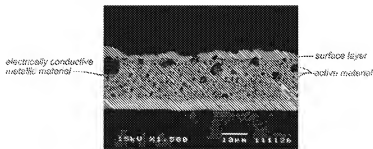


Fig. 11



At page 3 the Official Action refers to Figures 4(a) to 4(d) of Kawakami, which are reproduced below.

FIG. 4(a)



FIG. 4(b)

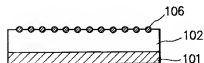


FIG. 4(c)

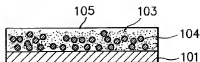
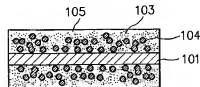


FIG. 4(d)



At page 3 the Official Action discusses the features of Kawakami but acknowledges that Kawakami is silent towards the metallic material to be penetration plated on to the active material species.

The Official Action then asserts:

Hartman teaches that an electrode made out of a porous material can be immersed in a plating bath using electrolysis (penetration plating) to deposit through the pores and interstitial surfaces a layer of metal for the benefit of improving the efficiency of the active material and capacity of the battery (1:15-41). It would have been obvious to one of ordinary skill in the art at the time of the invention to use penetration plating to plate the non-alloyable material in the electrode of Kawakami because Hartman teaches the structure formed from this process improves the efficiency of the active material and capacity of the battery.

The secondary reference of Hartman teaches an electrode having a porous graphite matrix. This electrode is produced by

the steps of impregnating the porous graphite matrix with a nickel plating solution, electroplating onto interstitial surfaces of the porous matrix a gas-pervious nickel coating, removing the electroplating solution from the matrix, and depositing nickel hydrate within the metal-coated pores of the matrix.

However, combining Hartman with Kawakami would not produce the present invention for the following reasons.

As stated above, Hartman discloses an electroplating step in the course of the production of an electrode. The electroplating is formed on the porous graphite matrix. Please note the porous graphite matrix is not a pulverized material and not an active material. Further, in the production process of Hartman, nickel hydrate, which is deemed to be an active material, is deposited on the electroplated nickel coating.

In other words, the electroplated nickel coating is not formed on nickel hydrate. In contrast to this, in the present invention, the electroplated metallic material is formed on the active material.

It is therefore clear that the combination of Kawakami and Hartman cannot arrive at the claimed invention since both Kawakami and Hartman do not teach or suggest the formation of electroplated metallic material that is present on the active material particles. For this reason, the claimed invention is not rendered obvious by the combination of Kawakami and Hartman.

Moreover, Hartman employs the electroplating process to improve the electrical contact of the active material with the porous graphite matrix, and as a result, to improve the efficiency of use of the active material (column 2, lines 18-22 of Hartman). In contrast to this, the electroplated metallic material employed in the present invention is for the purpose of preventing the falling-off of active material particles due to absorption and desorption of lithium ions.

There is therefore no motivation to apply the electroplating process of Hartman to the electrode of Kawakami to prevent the falling-off of active material particles.

Additional distinctions of the present invention over Kawakami are of record in the application which, for brevity, are not repeated here.

The other applied art references do not address the deficiencies of Kawakami and Hartman discussed above.

One of ordinary skill and creativity would thus not produce independent claim 13 of the present invention from a knowledge of Kawakami and Hartman. A *prima facie* case of unpatentability has thus not been made. Claims depending upon claim 13 are patentable for at least the above reasons.

These rejections are believed to be overcome, and withdrawal thereof is respectfully requested.

Conclusion

The rejections are believed to be overcome, obviated or rendered moot. As no issues remain, the issuance of a Notice of Allowability is respectfully solicited.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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